

**STATE OF WYOMING RETIREMENT SYSTEM**  
**ACTUARIAL VALUATION REPORT**  
**FOR THE YEAR BEGINNING JANUARY 1, 2014**

April 22, 2014

Board of Trustees  
**State of Wyoming Retirement System**  
6101 Yellowstone Road  
Suite 500  
Cheyenne, WY 82002

Dear Board of Trustees:

**Subject: Actuarial Valuation as of January 1, 2014**

We are pleased to present the report of the actuarial valuation of the State of Wyoming Retirement System (“the Fund”) for the plan year commencing January 1, 2014. This report describes the current actuarial condition of the Fund, determines the calculated employer contribution rate (the actuarially required rate), and analyzes changes in this contribution rate from the prior year. Valuations are prepared annually, as of January 1, the first day of the Fund’s plan year.

### **Financing objectives and funding policy**

The employer and employee contribution rates are specified in the statute. The purpose of this actuarial valuation is to determine whether or not this statutory contribution is sufficient to meet the obligations of the Fund.

### **Progress toward realization of financing objectives**

The funded ratio (the ratio of the actuarial value of assets to the actuarial accrued liability) is a standard measure of a plan’s funded status. The funded ratio, based upon the assumption of no further cost-of-living adjustment increases as of January 1, 2014 is 77.62%. In the January 1, 2013 valuation, this funded ratio was 78.56%. On a market value of assets basis, the funded ratio increased from 80.67% as of January 1, 2013 to 81.10% as of January 1, 2014.

### **Benefit provisions**

The benefit provisions reflected in this valuation are those which were in effect on January 1, 2014, including recent legislation that affects benefits for members who join the State of Wyoming Retirement System later than August 31, 2012. W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change. There were no benefit changes since the prior valuation.

The benefit provisions are summarized in Appendix B of the report.

### **Assumptions and methods**

Actuarial assumptions and methods are set by the Board, based upon recommendations made by the plan's actuary. The current assumptions used in the valuation were adopted by the Board effective February 22, 2013. This is the first valuation using the new assumptions.

The results of the actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. The actuarial calculations presented in the report are intended to provide information for rational decision making.

The actuarial assumptions and methods used in this report comply with the parameters for disclosure that appear in Governmental Accounting Standards Board (GASB) Statement Number 25.

All assumptions and methods are described in Appendix A of our report.

### **Data**

Member data for retired, active and inactive members was supplied as of January 1, 2014 by the Fund's staff. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data.

Asset and financial information as of January 1, 2014 was prepared by Wyoming Retirement System and is the responsibility of management. McGee, Hearne & Paiz, LLP provided us the asset and financial information and will opine on Wyoming Retirement System's statements.

### **Plan experience**

As part of each valuation, we examine the Fund's experience relative to the assumptions. As experience in a given year deviates from the assumptions, a gain occurs if the liabilities grow slower than the assumption set anticipates and a loss occurs if the liabilities grow faster. This past fiscal year the Fund had a total experience gain of approximately \$309 million, composed of a \$201 million investment gain, a \$33 million contribution loss, and a \$141 million liability gain. The gain in liability was primarily due to salary increases less than assumed. The aggregate results of these analyses are disclosed in Tables 4 & 5 under Section III of the report.

### **Legislated Contribution Rate Increases**

Per House Enrolled Act No. 103 from the 2013 Wyoming budget session and House Enrolled Act No. 11 from the 2014 budget session, the following contribution increases are expected:

#### Employee Contribution

- Effective July 1, 2014: Increase from 7.50% of pay to 8.25% of pay

State/Employer Contribution

- Effective July 1, 2014: Increase from 7.12% of pay to 7.62% of pay
- Effective July 1, 2015: Increase from 7.62% of pay to 8.37% of pay

Effective September 1, 2013, the employee contribution rate increased from 7.00% of pay to 7.50%.

**Actuarial certification**

All of the tables contained in this actuarial valuation report were prepared by Gabriel, Roeder, Smith & Company. Historical information for years prior to 2010 was prepared by the prior actuarial firm and was not subjected to our actuarial review.

We certify that the information presented herein is accurate and fairly portrays the actuarial position of the Fund as of January 1, 2014.

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of state law and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board. The undersigned are independent actuaries and consultants. Mark Randall and Leslie Thompson are Enrolled Actuaries and Members of the American Academy of Actuaries, and all meet the Qualification Standards of the American Academy of Actuaries. Finally, all of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,  
**Gabriel, Roeder, Smith & Company**



Mark R. Randall, FCA, EA, MAAA  
Executive Vice President



Leslie Thompson, FSA, FCA, EA, MAAA  
Senior Consultant



Todd D. Kanaster, ASA, FCA, MAAA  
Actuary

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## **SECTION I**

### **EXECUTIVE SUMMARY**

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Executive Summary

Item	January 1, 2014	January 1, 2014	January 1, 2013
	No COLA	No COLA	No COLA
	<i>New Assumptions</i>	<i>Old Assumptions</i>	
1. Contributions:			
a. Total normal cost	11.96%	10.66%	10.77%
b. Employee contributions	(7.50%)	(7.50%)	(7.00%)
c. Net employer normal cost	4.46%	3.16%	3.77%
d. Amortization payment	5.42%	4.07%	4.72%
e. Administrative expenses	0.40%	0.40%	0.37%
f. Required contribution	10.28%	7.63%	8.86%
g. Statutory contribution	(7.12%)	(7.12%)	(7.12%)
h. Shortfall/(surplus)	3.16%	0.51%	1.74%
2. Funding Elements:			
a. Market value of assets (MVA)	\$6,524,646,566	\$6,524,646,566	\$5,904,283,843
b. Actuarial value of assets (AVA)	\$6,244,501,550	\$6,244,501,550	\$5,749,967,972
c. Actuarial accrued liability (AAL)	\$8,045,046,972	\$7,597,859,161	\$7,319,204,726
d. Unfunded/(overfunded) actuarial accrued liability (UAAL)	\$1,800,545,422	\$1,353,357,611	\$1,569,236,754
3. GASB 25/27 Elements:			
a. Annual required contribution	\$183,086,430	\$135,975,170	\$158,013,754
b. Actual contributions	N/A	N/A	128,277,269
i. Employer	N/A	N/A	122,136,706
ii. Other	N/A	N/A	6,140,563
c. Percentage contributed	N/A	N/A	81.18%
d. Funded ratio on an actuarial basis (AVA/AAL)	77.62%	82.19%	78.56%
e. Funded ratio on a market basis (MVA/AAL)	81.10%	85.87%	80.67%
f. Projected payroll	\$1,782,062,471	\$1,782,062,471	\$1,782,069,208

Effective July 1, 2014, the employee contribution rate will increase from 7.50% to 8.25%. Effective July 1, 2014 the employer (statutory) rate will increase from 7.12% to 7.62% of pay, increasing again to 8.37% of pay effective July 1, 2015. Based on the timing of the contribution increases in 2014, the one-year shortfall would decrease from 3.16% to 2.53% of pay.

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## **SECTION II**

### DISCUSSION

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## Contribution Requirements

- Exhibits throughout this report are based primarily, unless stated otherwise, on the assumption of no future cost-of-living adjustments (COLAs).
- W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change. The actuarial value funded ratio is 77.62% and the market value funded ratio is 81.10%.
- Recent legislation increasing contribution rates was passed.
  - Per 2013 House Enrolled Act No 103:
    - Employee rate increased from 7.00% to 7.50% of pay, effective September 1, 2013
    - Employer rate increases from 7.12% to 7.62% of pay, effective September 1, 2014
  - Per 2014 House Enrolled Act No 11:
    - Change effective date of 2013 HEA No 103 employer rate increase to July 1, 2014
    - Employee rate increases from 7.50% to 8.25% of pay, effective July 1, 2014
    - Employer rate increases from 7.62% to 8.37% of pay, effective July 1, 2015
- The contribution shortfall shown in the report is based on rates in effect as of the valuation date; however, the shortfall over the course of the year will diminish as the contribution rates increase.
- There were no changes in the benefit provisions since the prior valuation.
- Actuarial assumptions and methods were updated since the prior valuation to those adopted February 22, 2013 by the Board. In particular, the assumed rate of return was lowered from 8.00% to 7.75%. All of the changes to the demographic and economic assumptions are detailed in Appendix A.
- The amortization payment is based upon the following assumptions:
  - 30-year open funding period
  - Amortization payment amounts are calculated in such a way that they will increase as a level percentage of payroll
  - Total payroll increases are assumed at 4.25% per year, and
  - Future growth in the number of active members is not reflected in the annual valuation
- The analysis of the changes in the contribution rates is shown in Table 5 under Section III of the report
- The calculated funding period assuming the current statutory contribution of 7.12% of pay is infinite, but does not reflect recent legislation to increase statutory contributions after the valuation date.
- Recent legislation that affects benefits for members who join the State of Wyoming Retirement System later than August 31, 2012 was enacted, creating a second tier of benefits (“Tier 2”). Had this legislation not been enacted, the normal cost would have been 12.17% instead of 11.96%. Over time, these savings from this new tier will become more apparent in the actuarial accrued liability and funded ratio.

## Calculation of Contribution Rates

The funds available to pay benefits come from two sources, contributions and investment income on those contributions (the majority of the funds available to pay benefits typically come from investment income). The Fund receives contributions from two sources, employer contributions and member contributions, both of which are determined as a percentage of pay. As shown in Table 1 under Section III of the report, the employer contribution rate has three components:

- The normal cost percentage (NC%)
- The amortization percentage (UAAL%)
- The administrative expenses

The NC% is the theoretical amount which would be required to pay the members' benefits if this amount had been contributed from each member's entry date and if the fund's experience exactly followed the actuarial assumptions. The NC% is shown in Table 3 under Section III of the report.

Members are required to make employee contributions and only the excess of the NC% over the member contribution rate is included in the employer contribution rate.

The actuarial accrued liability (AAL) is the difference between (i) the actuarial present value of all future benefits for all current participants of the fund, including active, inactive and retired members, and (ii) the actuarial present value of future normal costs. Thus, the AAL represents the liability associated with past years. The unfunded actuarial accrued liability (UAAL) is the difference between the AAL and the actuarial value of assets (AVA). It is the shortfall/excess between the liability associated with prior years (the AAL) and the assets actually accumulated (the AVA). This shortfall/excess can arise from several sources, including actuarial gains and losses which are caused by differences between actual experience and the plan's assumptions, changes to the plan's actuarial assumptions, and amendments to the benefit provisions.

The UAAL% is the amount required to fund this difference. It is the amount, expressed as a level percentage of payroll, necessary to amortize the UAAL. This amortization is over a period of 30 years beginning January 1, 2014. The Executive Summary shows the UAAL%, called Amortization Payment, compared to that of last year.

Assumed administrative expenses are the average of the prior two years, with each year projected at 6.5% to the valuation date.

The calculated rate is used in determining the contributions necessary to meet the GASB Annual Required Contribution (ARC) for the twelve-month period beginning January 1, 2014. As of January 1, 2014, the employer contribution is within 4% of meeting the ARC.

## Financial Data and Experience

As of January 1, 2014, the Fund has a total market value of \$6,525 million. Financial information was received from McGee, Hearne & Paiz, LLP.

Table 7 under Section III of the report shows a reconciliation of the market values between the beginning and end of 2013.

During 2013, the total investment return on the market value of assets (MVA), as reported by NEPC, was 13.53%, as shown in Table 10 under Section III of the report.

In determining the contribution rates and funded status of the Fund, an actuarial value of assets (AVA) is used rather than the market value of assets. The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses. An adjustment is made if the actuarial value is not within 20% of the Market Value. For any year following a year in which the 20% of market value adjustment was applied, the actuarial value is determined as if the adjustment was not applied in the previous year.

The development of the AVA is shown in Table 9 under Section III of the report. The AVA is \$6.2 billion. The AVA is 95.71% of the MVA as of December 31, 2013, compared to 97.39% last year. The difference between the AVA and the MVA is the deferred gains and losses. As of January 1, 2013, the total deferred gain was \$154 million. As of January 1, 2014, the total deferred gain was \$280 million.

In addition to the market return, Table 10 also shows the return on the actuarial value of assets for the Fund. For 2013, this return was 11.55%. Since this return is greater than the prior assumed 8.00% investment return, an actuarial gain occurred decreasing the unfunded actuarial accrued liabilities of the Fund by \$201.1 million.

## Member Data

Member data as of January 1, 2014 was supplied electronically by the Fund's staff. While we did not audit this data, we did perform various tests to ensure that it was internally consistent, consistent with the prior year's data, and was reasonable overall.

Table 15 under Section III of the report shows the number of members by category (active, inactive, retired, etc.) along with member statistics. Tables 16 through 28 show summaries of certain historical data and include membership statistics.

Total active member payroll remained nearly constant last year, compared with a 1.44% increase the prior year.

Of the 36,354 active participants, 6,613 are eligible or will become eligible for unreduced retirement and 8,083 are eligible or will become eligible for reduced retirement in 2014.

The average of the final average salaries for participants who retired or became disabled this year is \$51,586.

Changes in payroll are significant because the methodology used in the valuation to amortize the unfunded actuarial accrued liability assumes a growing payroll into the future. If the payroll does not grow at the assumed 4.25% per year average, then the current amortization payments may be understated and the funding position of the Fund will not strengthen as assumed over time. Higher than expected payroll growth, however, has the opposite effect of this and the funded position of the Fund should trend to 100%. Table 5 under Section III of the report shows, for the past year, payroll for the plan increased less than expected so the effect is an increase in the calculated contribution rate of 0.23% of payroll.

One reason payroll increased less than expected is that the salary, for continuing active participants, increased less than expected. This represented a gain to the Plan, as shown in Table 4 under Section III of the report.

## Benefit Provisions

Appendix B of the report includes a more detailed summary of the benefit provisions for the Fund. A brief summary is as follows:

A new tier of benefits was signed into law on March 23, 2012 and is effective for new members joining the System on or after September 1, 2012.

– *Tier*

- Members who join the State of Wyoming Retirement System by August 31, 2012 are in Tier 1, while members who join later are in Tier 2

– *Normal Retirement Eligibility*

- For Tier 1 member - Age 60 with at least four years of service
- For Tier 2 member - Age 65 with at least four years of service

– *Normal Retirement Benefit*

- For Tier 1 member - 2.125% of employee's Highest Average Salary for each year of credited service for the first 15 years of service credit plus 2.25% of Highest Average Salary for any years of service credit exceeding 15 years. This amount is reduced by 5.0% per year that the employee is under age 60.
- For Tier 2 member - 2.00% of employee's Highest Average Salary for each year of credited service. This amount is reduced by 5.0% per year that the employee is under age 65.

However, members retiring with a combined age and service of at least 85 receive an unreduced benefit. Employees hired prior to July 1, 1981 may be entitled to benefits earned under a different formula.

– *Normal Form of Payment*

- Monthly benefit for life with a lump-sum death benefit equal to the excess (if any) of the employee contributions with interest over the total benefits received.

– *Employee Contributions* are required

- 7.50% of pay.

– *Post-retirement Cost-of-Living Adjustments (COLAs)*

- W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change.

There have been no changes to plan provisions since the prior valuation.

## Actuarial Methods and Assumptions

Appendix A of the report includes a summary of the actuarial assumptions and methods used in this valuation. A few highlights are listed as follows:

- Costs are determined using the Entry Age Normal actuarial cost method, calculated as a level percentage of payroll.
- The unfunded actuarial accrued liability is amortized over an open 30 year period as a level percent of payroll.
- The assumed annual investment return rate is 7.75%, with assumed inflation of 3.25%.
- Payroll is assumed to increase at 4.25% per year.
- Inactive vested participants are assumed to retire at age 60 (65 for Tier 2) or on the valuation date if older.
- No benefit data is available for members entitled to deferred benefits. The present value of benefits expected to be paid to vested inactive non-retired members is approximated using the data provided.

Based on the current mortality tables projected to 2018 to approximate annual changes due to the generational assumption (instead of full generational projections), the average future lifetime for current pensioners is 15.7 years.

Actuarial assumptions and methods were updated since the prior valuation to those adopted February 22, 2013 by the Board.

## **GASB and Funding Progress**

Governmental Accounting Standards Board Statement Number 25 (GASB 25) contains certain accounting requirements for the Fund. In particular, it requires the inclusion of two special schedules in the Fund's annual report:

1. Schedule of Funding Progress
2. Schedule of Employer Contributions

Information needed to prepare the Schedule of Funding Progress is included in Table 12 under Section III of the report.

Governmental Accounting Standards Board Statement Number 27 (GASB 27) also requires that plans calculate an Annual Required Contribution (ARC), and, if actual contributions received are less than the ARC, this must be disclosed.

Under GASB 27, the ARC must be calculated in accordance with certain parameters. In particular, it must include a payment to amortize the unfunded actuarial accrued liability (UAAL). This amortization payment must be computed using a funding period no greater than 30 years. Further, the amortization payment included in the ARC may be computed as a level dollar amount, or it may be computed as an amount which increases with payroll (level percentage of payroll). However, if payments are computed on a level percentage of payroll approach, the payroll growth assumption may not anticipate future membership growth.

Since the recommended employer contribution rate of 10.28% is computed as a level percentage of payroll using an amortization period of 30 years from the valuation date, the calculated rate meets the definition of an acceptable ARC.

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**SECTION III**  
SUPPORTING EXHIBITS

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**Calculation of Annual Required Contribution Rate**  
*(Assumes No Future Cost-Of-Living Increases)*

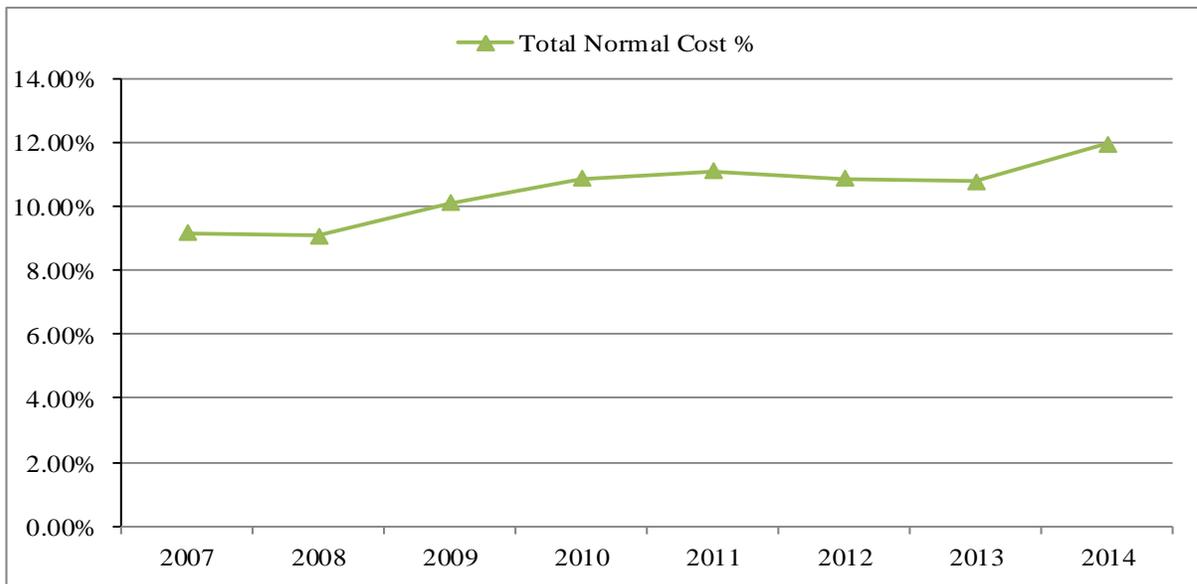
Item	January 1, 2014	January 1, 2013
1. Projected valuation payroll	\$1,782,062,471	\$1,782,069,208
2. Present value of future pay	\$13,652,163,243	\$13,587,511,990
3. Employer normal cost rate	4.46%	3.77%
4. Actuarial accrued liability for active members		
a. Present value of future benefits for active members	\$5,372,121,119	\$4,938,390,587
b. Less: present value of future employer normal costs	(554,282,055)	(430,619,907)
c. Less: present value of future employee contributions	(1,023,912,243)	(913,514,005)
d. Actuarial accrued liability	\$3,793,926,821	\$3,594,256,675
5. Total actuarial accrued liability for:		
a. Retirees and beneficiaries	\$3,893,163,009	\$3,404,048,187
b. Disabled members	34,442,257	34,015,248
c. Inactive members	323,514,885	286,884,616
d. Active members (Item 4d)	3,793,926,821	3,594,256,675
e. Total	\$8,045,046,972	\$7,319,204,726
6. Actuarial value of assets (Table 9)	\$6,244,501,550	\$5,749,967,972
7. Unfunded actuarial accrued liability (UAAL) (Item 5e - Item 6)	\$1,800,545,422	\$1,569,236,754
8. Funding period	30 years	30 years
9. Assumed payroll growth rate	4.25%	4.50%
10. Employer contribution requirement		
a. UAAL amortization payment as % of pay	5.42%	4.72%
b. Employer normal cost	4.46%	3.77%
c. Administrative expense	0.40%	0.37%
d. Contribution requirement (a + b + c)	10.28%	8.86%

**Cost Breakdown**  
*(Assumes No Future Cost-Of-Living Increases)*

Item	Present Value of Future Normal Costs (1)	Actuarial Accrued Liabilities (2)	Total Present Value of Benefits (3) = (1) + (2)
Age and service allowances based on total service and disability benefits likely to be rendered by present active members	\$1,270,543,955	\$3,801,071,784	\$5,071,615,739
Death-in-service benefits likely to be paid on behalf of present active members (employer financed portion)	25,524,516	59,450,773	84,975,289
Separation benefits (refunds of contributions and deferred allowances) likely to be paid to present active members	282,125,827	(66,595,736)	215,530,091
Benefits likely to be paid to vested inactive members	0	285,395,629	285,395,629
Benefits to be paid to members due refunds	0	38,119,256	38,119,256
Benefits to be paid to current retirees, disabled members, beneficiaries, and future beneficiaries of current retirees	0	3,927,605,266	3,927,605,266
<b>Total</b>	<b>\$1,578,194,298</b>	<b>\$8,045,046,972</b>	<b>\$9,623,241,270</b>
Actuarial value of assets	0	6,244,501,550	6,244,501,550
Liabilities to be covered by future contributions	\$1,578,194,298	\$1,800,545,422	\$3,378,739,720

**History of Total Normal Cost**  
*(Assumes No Future Cost-Of-Living Increases)*

<u>Fiscal Year Ending December 31</u>	<u>Normal Cost as Percent of Payroll</u>
(1)	(2)
2007	9.17%
2008	9.08%
2009	10.10%
2010	10.86%
2011	11.11%
2012	10.86%
2013	10.77%
2014	11.96%



**Calculation of Total Actuarial Gain/(Loss)**  
*(Assumes No Future Cost-Of-Living Increases)*

Item	January 1, 2014
1. Derivation of Experience Gain/(Loss)	
a. Unfunded actuarial accrued liability (UAAL) - previous valuation	\$1,569,236,754
b. Normal cost (NC) for fiscal year ending 12/31/2013	192,012,115
c. Actual administrative expenses for fiscal year ending 12/31/2013	6,513,680
d. Actuarially determined contribution for fiscal year ending 12/31/2013	282,758,598
e. Interest accrual*:	
(i) For whole year on (a)	125,538,940
(ii) For half year on (b) + (c) - (d)	(3,369,312)
(iii) Total interest: (e)(i) + (e)(ii)	122,169,628
f. Change in UAAL due to plan changes	-
g. Change in UAAL due to assumption change	502,187,811
h. Expected UAAL current year: (a) + (b) + (c) - (d) + (e)(iii) + (f) + (g)	2,109,361,390
i. Actual UAAL current year	1,800,545,422
j. Experience gain/(loss): (h) - (i)	\$308,815,968
k. Experience gain/(loss) as a % of actuarial accrued liability	3.84%
2. Approximate portion of gain/(loss) due to investments* (at actuarial value)	\$201,063,478
3. Approximate portion of gain/(loss) due to contributions* Higher or lower than expected	(\$33,144,955)
4. Approximate amount of gain/(loss) due to liabilities: (1)(j) - (2) - (3)	\$140,897,445
a. Age & service retirements	(\$7,634,786)
b. Disability retirements	(357,678)
c. Death-in-service	(377,829)
d. Withdrawal from employment	(7,956,558)
e. Rehires	(1,493,278)
f. Pay increases	152,251,508
g. Death after retirement	1,339,229
h. Other	5,126,837
i. Other as a % of actuarial accrued liability	0.06%

\* The interest accrual of 8.00% is used for the period January 1, 2013 through December 31, 2013. Effective January 1, 2014, the assumed interest rate is 7.75%.

**Change in Calculated Contribution Rate Since the Prior Valuation**  
*(Assumes No Future Cost-Of-Living Increases)*

Item	January 1, 2014
1. Calculated contribution rate as of January 1, 2013	8.86%
2. Change in contribution rate during year	
a. Change in employer normal cost	0.69%
b. Assumption changes to accrued liability	1.48%
c. Recognition of prior asset losses (gains)	-0.34%
d. Actuarial (gain) loss from current year asset performance	-0.19%
e. Actuarial (gain) loss from liability sources & administrative expenses	-0.44%
f. Difference between contributions made and required contribution	0.10%
g. Effect of payroll growing (faster)/slower than assumption	0.23%
h. Open amortization period reset to 30 years	-0.11%
i. Other changes	0.00%
j. Total change	1.42%
3. Calculated contribution rate as of January 1, 2014	10.28%

Statement of Plan Net Assets

<b>Assets at Market Value</b>		
<b>Item</b>	<b>FYE 2013</b>	<b>FYE 2012</b>
1. Cash and Cash Equivalents (Operating Cash)	\$218,096,275	\$269,200,385
2. Receivables		
a. Insurance premium tax	\$0	\$0
b. Buy backs	0	0
c. Employer contributions	9,241,297	8,354,892
d. Employee contributions	9,417,848	8,472,564
e. Securities sold	28,371,782	14,658,774
f. Accrued interest and dividends	20,586,422	14,756,018
g. Currency contract receivable	856,389,104	141,356,952
h. Other	104,746	57,705
i. Rebate and fee income receivable	0	0
j. Total receivables	<u>\$924,111,199</u>	<u>\$187,656,905</u>
3. Investments, at Fair Value	\$7,064,779,400	\$6,210,977,505
4. Liabilities		
a. Benefits and refunds payable	(\$377,413)	(\$483,484)
b. Securities purchased	(86,722,523)	(101,311,797)
c. Administrative and consulting fees payable	(9,448,308)	(6,411,854)
d. Currency contract payable	(860,747,448)	(141,025,011)
e. Securities lending collateral	(725,044,616)	(514,318,806)
f. Total liabilities	<u>(\$1,682,340,308)</u>	<u>(\$763,550,952)</u>
5. Total Market Value of Assets Available for Benefits	\$6,524,646,566	\$5,904,283,843

Reconciliation of Plan Net Assets

Assets at Market Value		
Item	FYE 2013	FYE 2012
A. Market Value of Assets at Beginning of Year	\$5,904,283,843	\$5,318,208,995
B. Contribution Income:		
1. Contributions		
a. Employee	\$122,611,180	\$119,052,404
b. Employer	122,136,706	121,026,954
c. Other	6,140,563	3,621,134
d. Total	<u>\$250,888,449</u>	<u>\$243,700,492</u>
2. Investment Income		
a. Interest, dividends, and other income	\$154,643,671	\$149,314,224
b. Net appreciation	659,620,545	595,202,806
c. Investment expenses	(37,382,618)	(24,955,969)
d. Net investment income	<u>\$776,881,598</u>	<u>\$719,561,061</u>
3. Securities Lending		
a. Gross income	\$4,322,454	\$4,595,582
b. Deductions	(648,069)	(689,067)
c. Net investment income	<u>\$3,674,385</u>	<u>\$3,906,515</u>
4. Benefits and Refunds		
a. Refunds	\$(17,130,828)	\$(17,263,004)
b. Regular monthly benefits	(387,437,201)	(357,366,710)
c. Total	<u>\$(404,568,029)</u>	<u>\$(374,629,714)</u>
5. Administrative and Miscellaneous Expenses	\$(6,513,680)	\$(6,463,506)
C. Market Value of Assets at End of Year	\$6,524,646,566	\$5,904,283,843

Progress of Fund Through December 31, 2013

Plan Year Ending December 31	Employer Contributions*	Employee Contributions	Administrative Expenses	Net Investment Income**	Benefit Payments	Transfers	Actuarial Value of Assets
Total	\$ 1,901,301,280	\$ 1,710,308,094	\$ (52,853,582)	\$ 6,749,088,584	\$ (4,713,826,287)	\$ (115,633,895)	
1986	\$ 41,364,465	\$ 36,365,804	\$ (782,000)	\$ 98,998,090	\$ (42,082,765)	\$ -	\$ 900,097,591
1987	39,901,834	36,039,418	(808,023)	91,374,783	(50,604,364)	-	1,016,001,239
1988	38,414,939	33,222,264	(444,343)	103,025,282	(48,627,479)	-	1,141,591,902
1989	36,139,394	36,231,108	(424,136)	128,370,680	(55,459,353)	-	1,286,449,595
1990	38,668,634	38,960,372	(850,148)	114,218,588	(61,154,261)	-	1,416,292,780
1991	38,903,350	39,288,267	(863,301)	148,164,188	(69,348,501)	-	1,572,336,783
1992	42,354,843	42,883,874	(909,653)	175,246,400	(75,211,430)	-	1,756,700,817
1993	41,596,571	42,266,219	(801,026)	189,281,426	(82,480,713)	-	1,946,563,294
1994	42,791,243	43,415,880	(888,518)	136,210,578	(89,707,717)	-	2,078,384,760
1995	43,714,263	44,435,762	(937,480)	230,731,781	(99,689,985)	-	2,296,639,101
1996	43,495,146	44,761,611	(1,028,163)	233,212,720	(108,536,621)	-	2,508,543,794
1997	44,958,544	46,152,691	(1,147,818)	314,340,179	(117,126,096)	-	2,795,721,294
1998	46,183,091	47,366,181	(1,074,562)	436,098,461	(123,858,991)	-	3,200,435,474
1999	48,681,209	50,106,535	(1,182,899)	475,758,627	(132,428,572)	-	3,641,370,374
2000	50,539,675	51,868,059	(1,096,747)	592,379,739	(144,620,949)	-	4,190,440,151
2001	56,517,377	53,792,429	(1,387,930)	439,286,379	(156,189,100)	-	4,582,462,306
2002	57,377,428	58,234,324	(1,281,554)	(66,209,697)	(171,160,286)	(106,978,719)	4,352,423,802
2003	55,363,788	60,848,296	(1,435,922)	376,524,142	(185,826,481)	-	4,657,897,625
2004	60,573,670	61,412,824	(1,644,382)	127,831,761	(201,772,174)	-	4,704,299,324
2005	65,191,670	63,381,309	(1,930,627)	238,882,774	(217,308,520)	(8,655,176)	4,843,861,114
2006	72,664,403	69,020,297	(1,949,051)	409,948,934	(232,944,164)	-	5,160,601,533
2007	83,149,236	78,495,298	(2,005,783)	583,547,681	(249,765,088)	-	5,654,022,877
2008	88,451,655	84,814,014	(2,778,990)	(720,402,274)	(268,232,301)	-	4,835,874,981
2009***	244,063,923	89,298,711	(3,081,105)	868,641,735	(292,256,569)	-	5,742,541,676
2010	104,757,666	99,291,423	(3,600,747)	170,797,772	(314,256,856)	-	5,799,530,934
2011	122,557,906	116,691,540	(5,541,488)	71,962,242	(343,979,208)	-	5,761,221,926
2012	124,648,088	119,052,404	(6,463,506)	126,138,774	(374,629,714)	-	5,749,967,972
2013	128,277,269	122,611,180	(6,513,680)	654,726,838	(404,568,029)	-	6,244,501,550

\* Includes other funding sources

\*\* Net of investment expenses

\*\*\* December 31, 2009 market values exclude Air Guard Firefighters

**Development of Actuarial Value of Assets**

Item	FYE 2013	FYE 2012
1. Actuarial value of assets, beginning of year (without corridor)	\$5,749,967,972	\$5,761,221,926
2. Market value, end of year	\$6,524,646,566	\$5,904,283,843
3. Market value, beginning of year	\$5,904,283,843	\$5,318,208,995
4. Non-investment/administrative net cash flow:		
a. Employee contributions	\$122,611,180	\$119,052,404
b. Employer contributions	122,136,706	121,026,954
c. Other contributions	6,140,563	3,621,134
d. Refund of employee accounts	(17,130,828)	(17,263,004)
e. Retirement benefits	(387,437,201)	(357,366,710)
f. Administrative expenses	(6,513,680)	(6,463,506)
g. Total net cash flow: [sum of (4a) through (4f)]	<u>(\$160,193,260)</u>	<u>(\$137,392,728)</u>
5. Investments and securities lending:		
a. Interest and dividends on investments	\$154,643,671	\$149,314,224
b. Gross income from securities lending	4,322,454	4,595,582
c. Fees and expenses	(38,030,687)	(25,645,036)
d. Total net income: [sum of (5a) through (5c)]	<u>\$120,935,438</u>	<u>\$128,264,770</u>
6. Investment income:		
a. Actual market return: (2) - (3) - (4g) - (5d)	\$659,620,545	\$595,202,806
b. Assumed rate of return**	8.00%	8.00%
c. Assumed amount of return	345,122,810	291,801,966
d. Amount subject to phase-in: (6a) - (6c)	<u>\$314,497,735</u>	<u>\$303,400,840</u>
7. Phase-in recognition of investment income:		
a. Current year: 0.20 * (6d)	\$62,899,547	\$60,680,168
b. First prior year	60,680,168	(99,713,617)
c. Second prior year	(99,713,617)	48,937,178
d. Third prior year	48,937,178	115,865,314
e. Fourth prior year	115,865,314	(419,697,005)
f. Total recognition	<u>\$188,668,590</u>	<u>(\$293,927,962)</u>
<b>8. Actuarial value of assets, end of year</b>		
a. Preliminary actuarial value of assets, end of year: (1) + (4g) + (5d) + (6c) + (7f)	\$6,244,501,550	\$5,749,967,972
b. Upper corridor limit: 120% * (2)	7,829,575,879	7,085,140,612
c. Lower corridor limit: 80% * (2)	5,219,717,253	4,723,427,074
d. Actuarial value of assets, end of year	\$6,244,501,550	\$5,749,967,972
9. Difference between market and actuarial value of assets	\$280,145,016	\$154,315,871
<b>10. Actuarial rate of return</b>	11.55%	2.22%
<b>11. Market rate of return*</b>	13.53%	14.05%
<b>12. Ratio of actuarial value to market value of assets</b>	95.71%	97.39%

\* Current year market rate of return is based on unaudited data and is supplied by NEPC, LLC.

\*\* The interest accrual of 8.00% is used for the period January 1, 2013 through December 31, 2013. Effective January 1, 2014, the assumed interest rate is 7.75%.

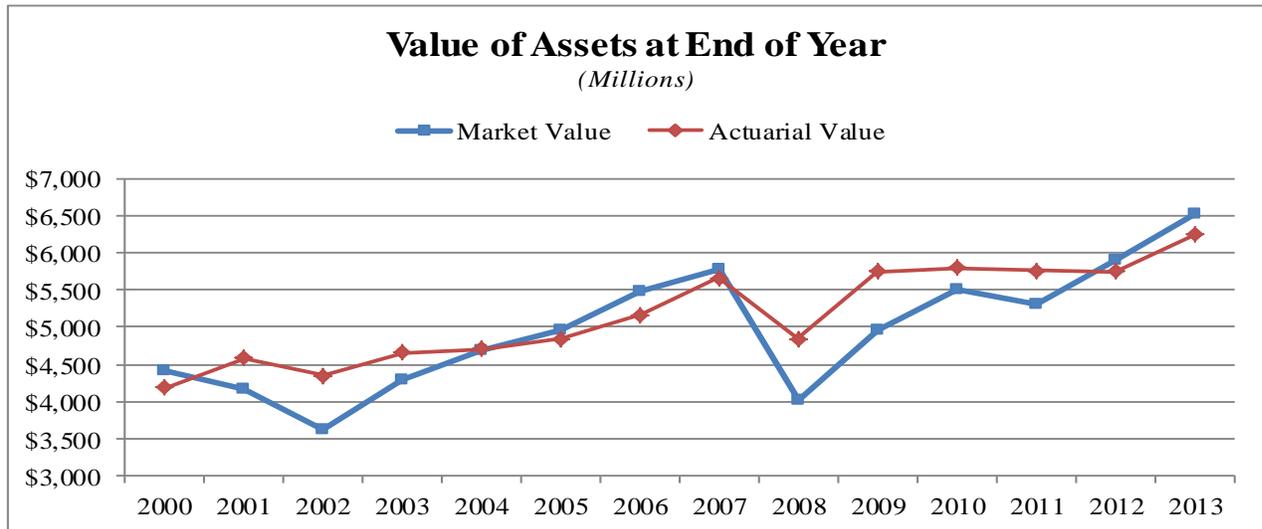
### History of Investment Returns

Plan Year (1)	Market Value (2)	Actuarial Value (3)
2000	-0.99%	16.37%
2001	-4.47%	10.54%
2002	-9.29%	-1.47%
2003	21.00%	8.72%
2004	11.54%	2.77%
2005	8.22%	5.13%
2006	12.63%	8.55%
2007	7.44%	11.41%
2008	-29.63%	-12.85%
2009	23.72%	17.89%
2010	13.80%	3.00%
2011	-0.90%	1.25%
2012	14.05%	2.22%
2013	13.53%	11.55%

**Average returns:**

Last five years:	12.56%	6.99%
Last ten years:	6.38%	4.79%

The market rates above were provided by NEPC, LLC, including changes to the 2010 and 2012 rates since the prior valuation. The actuarial rates above are based on the financial information provided by McGee, Heame & Paiz, LLP.



Solvency Test

Valuation Date January 1	Total Active Member Contributions (1)	Inactive and Pensioner Liability (2)	Employer Financed Active Accrued Liability (3)	Actuarial Value of Assets	Percentage of Liabilities Covered by Assets		
					(1)	(2)	(3)
2005	\$840,104,000	\$2,592,159,000	\$2,103,929,000	\$4,704,299,324	100%	100%	60.5%
2006	888,544,000	2,354,500,000	1,848,710,000	4,843,861,114	100%	100%	86.6%
2007	941,572,000	2,488,504,000	2,038,153,000	5,160,601,533	100%	100%	84.9%
2008	991,444,000	2,699,505,000	2,325,036,000	5,654,022,877	100%	100%	84.4%
2009	1,036,443,231	2,796,308,000	2,319,370,769	4,835,874,981	100%	100%	43.2%
2010	1,109,001,753	2,933,630,669	2,519,698,185	5,742,541,676	100%	100%	67.3%
2011	1,161,508,226	3,178,244,317	2,515,890,340	5,799,530,934	100%	100%	58.0%
2012	1,226,273,201	3,455,740,883	2,355,172,581	5,761,221,926	100%	100%	45.8%
2013	1,286,009,555	3,724,948,051	2,308,247,120	5,749,967,972	100%	100%	32.0%
2014	1,333,532,543	4,251,120,151	2,460,394,278	6,244,501,550	100%	100%	26.8%

*Excludes Air Guard beginning in 2010*

*Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.*

Schedule of Funding Progress

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Valuation Date January 1	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL) [(3) - (2)]	Funded Ratio [(2)/(3)]	Covered Payroll	UAAL as a Percentage of Covered Payroll [(4)/(6)]
2001	\$4,190,440,151	\$3,683,174,000	(\$507,266,151)	113.77%	\$897,641,000	(56.51%)
2002	4,582,462,306	4,442,033,000	(140,429,306)	103.16%	964,121,000	(14.57%)
2003	4,352,423,802	4,718,618,000	366,194,198	92.24%	988,135,000	37.06%
2004	4,657,897,625	5,077,443,000	419,545,375	91.74%	1,032,259,000	40.64%
2005	4,704,299,324	4,902,322,000	198,022,676	95.96%	1,086,736,000	18.22%
2006	4,843,861,114	5,091,763,000	247,901,886	95.13%	1,156,400,000	21.44%
2007	5,160,601,533	5,468,229,000	307,627,467	94.37%	1,285,096,000	23.94%
2008	5,654,022,877	6,015,985,000	361,962,123	93.98%	1,462,474,000	24.75%
2009	4,835,874,981	6,152,122,000	1,316,247,019	78.60%	1,585,728,000	83.01%
2010	5,742,541,676	6,562,330,607	819,788,931	87.51%	1,697,341,384	48.30%
2011	5,799,530,934	6,855,642,883	1,056,111,949	84.59%	1,728,433,786	61.10%
2012	5,761,221,926	7,037,186,665	1,275,964,739	81.87%	1,756,856,648	72.63%
2013	5,749,967,972	7,319,204,726	1,569,236,754	78.56%	1,782,069,208	88.06%
2014	6,244,501,550	8,045,046,972	1,800,545,422	77.62%	1,782,062,471	101.04%

*Excludes Air Guard beginning in 2010*

*Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.*

**Schedule of Contributions from the Employer(s) and Other Contributing Entities**

(1)	(2)	(3)	(4)	(5)	(6)
Fiscal Year Ending December 31	GASB No. 25 Annual Required Contribution (ARC)		Employer Contributions*		Percentage of GASB ARC Contributed
	% of Payroll	Amount	% of Payroll	Amount	[(5)/(3)]
2004	8.76%	\$90,477,000	5.87%	\$60,573,670	66.95%
2005	10.00%	108,707,000	6.00%	65,191,670	59.97%
2006	5.68%	65,714,000	6.28%	72,664,403	110.58%
2007	5.68%	73,035,000	6.47%	83,149,236	113.85%
2008	5.68%	83,036,000	6.05%	88,451,655	106.52%
2009	9.15%	145,015,000	15.39%	244,063,923**	168.32%
2010	8.06%	136,689,664	6.17%	104,757,666	76.64%
2011	7.60%	131,260,466	7.09%	122,557,906	93.37%
2012	8.04%	141,299,725	7.09%	124,648,088	88.22%
2013	8.86%	158,013,754	7.20%	128,277,269	81.18%
2014	10.28%	183,086,430	-	-	-

*Excludes Air Guard beginning December 31, 2009, including Employer Contributions of \$149,244 as of December 31, 2009.*

*Effective January 1, 2010, liabilities are calculated assuming no future cost-of-living increases.*

\* Includes other funding sources

\*\* There was a \$150.6 million legislative appropriation to address the increase in school district employee pay.

Reconciliation of Participant Data

	Active Participants		Vested Former Participants	Retired Participants	Disabled	Beneficiaries	Participants Due Refunds	Total
	Tier 1	Tier 2						
<b>Number as of January 1, 2013</b>	<b>35,197</b>	<b>1,247</b>	<b>5,368</b>	<b>19,290</b>	<b>252</b>	<b>2,058</b>	<b>18,793</b>	<b>82,205</b>
New participants	-	3,832	-	-	-	-	395	4,227
Vested terminations	(859)	(1)	922	-	-	-	(62)	-
Retirements	(1,222)	-	(323)	1,554	-	-	(9)	-
Disability	(6)	-	(2)	-	8	-	-	-
Deceased with beneficiary	(7)	-	(4)	(146)	(3)	161	(1)	-
Deceased without beneficiary	(21)	(1)	(15)	(362)	(7)	(83)	(6)	(495)
Due refunds	(914)	(264)	(1)	-	-	-	1,179	-
Lump sum payoffs	(935)	(106)	(212)	(1)	-	(7)	(867)	(2,128)
Rehires/return to active	180	234	(135)	(5)	-	-	(274)	-
Certain period expired	-	-	-	-	-	-	-	-
Reclassifications	(38)	38	2	-	-	1	1	4
Data corrections	-	-	24	4	-	17	-	45
<b>Number as of January 1, 2014</b>	<b>31,375</b>	<b>4,979</b>	<b>5,624</b>	<b>20,334</b>	<b>250</b>	<b>2,147</b>	<b>19,149</b>	<b>83,858</b>

**Demographic Statistics**

	<u>January 1</u>		Change
	2014	2013	
<u>Active Participants</u>			
Number	36,354	36,444	-0.2%
<i>Vested</i>	24,539	24,963	
<i>Not vested</i>	11,815	11,481	
Average age (years)	46.53	46.65	-0.3%
Average service (years)	10.19	10.27	-0.8%
Average entry age (years)	36.34	36.38	-0.1%
Total payroll*	\$1,782,062,471	\$1,782,069,208	0.0%
Average payroll*	\$49,020	\$48,899	0.2%
Total employee contributions with interest	\$1,333,532,543	\$1,286,009,555	3.7%
Average employee contributions with interest	\$36,682	\$35,287	4.0%
<u>Vested Former Participants</u>			
Number	5,624	5,368	4.8%
Average age (years)	52.09	52.42	-0.6%
Total employee contributions with interest	\$171,843,883	\$159,205,146	7.9%
Average employee contributions with interest	\$30,555	\$29,658	3.0%
<u>Service Retirees</u>			
Number	20,334	19,290	5.4%
Average age (years)	71.35	71.32	0.0%
Total annual benefits	\$366,785,789	\$337,454,368	8.7%
Average annual benefit	\$18,038	\$17,494	3.1%
<u>Disability Retirees</u>			
Number	250	252	-0.8%
Average age (years)	63.03	62.48	0.9%
Total annual benefits	\$3,868,780	\$3,886,315	-0.5%
Average annual benefit	\$15,475	\$15,422	0.3%
<u>Beneficiaries</u>			
Number	2,147	2,058	4.3%
Average age (years)	75.62	75.30	0.4%
Total annual benefits	\$28,387,473	\$26,295,618	8.0%
Average annual benefit	\$13,222	\$12,777	3.5%
Participants Due Refunds	19,149	18,793	1.9%

\* Projected payroll for the upcoming valuation year

**Distribution of Male Active Members by Age and by Years of Service**

Average Age = 47.1      Average Service = 10.4

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 20</b>	Count	21	-	-	-	-	-	-	21
	Avg. Salary	\$17,822	-	-	-	-	-	-	\$17,822
<b>20-24</b>	Count	327	7	-	-	-	-	-	334
	Avg. Salary	29,896	\$36,350	-	-	-	-	-	30,031
<b>25-29</b>	Count	822	139	4	-	-	-	-	965
	Avg. Salary	39,975	45,119	\$53,854	-	-	-	-	40,773
<b>30-34</b>	Count	766	478	81	-	-	-	-	1,325
	Avg. Salary	44,595	54,870	54,621	-	-	-	-	48,915
<b>35-39</b>	Count	577	495	293	52	-	-	-	1,417
	Avg. Salary	47,590	56,321	61,357	\$62,771	-	-	-	54,044
<b>40-44</b>	Count	498	377	284	252	55	-	-	1,466
	Avg. Salary	45,406	54,064	61,546	67,876	\$65,386	-	-	55,371
<b>45-49</b>	Count	437	392	250	220	257	70	5	1,631
	Avg. Salary	45,863	55,540	57,555	67,761	70,909	\$62,347	\$53,853	57,613
<b>50-54</b>	Count	443	392	255	211	239	227	127	1,894
	Avg. Salary	43,517	52,464	55,328	62,412	65,010	70,855	69,507	56,795
<b>55-59</b>	Count	458	389	266	201	220	224	272	2,030
	Avg. Salary	43,787	50,682	53,963	60,290	63,512	68,615	73,422	56,924
<b>60-64</b>	Count	293	275	194	131	145	129	235	1,402
	Avg. Salary	38,552	49,647	54,845	59,274	61,308	70,231	72,500	55,878
<b>65-69</b>	Count	103	124	65	33	41	35	68	469
	Avg. Salary	31,113	43,924	48,087	54,865	63,894	72,325	68,067	49,823
<b>70 &amp; Over</b>	Count	54	45	30	16	4	9	13	171
	Avg. Salary	29,284	33,733	37,753	43,257	42,537	60,818	73,536	38,582
<b>Totals</b>	Count	<b>4,799</b>	<b>3,113</b>	<b>1,722</b>	<b>1,116</b>	<b>961</b>	<b>694</b>	<b>720</b>	<b>13,125</b>
	Avg. Salary	<b>\$42,237</b>	<b>\$52,581</b>	<b>\$56,821</b>	<b>\$63,469</b>	<b>\$65,566</b>	<b>\$69,102</b>	<b>\$71,791</b>	<b>\$53,159</b>

Average salary represents annualized salary earned in 2013 and is not shown for cells with counts less than or equal to three participants

**Distribution of Female Active Members by Age and by Years of Service**

Average Age = 46.2      Average Service = 10.0

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 20</b>	Count	35	-	-	-	-	-	-	35
	Avg. Salary	\$11,028	-	-	-	-	-	-	\$11,028
<b>20-24</b>	Count	756	1	-	-	-	-	-	757
	Avg. Salary	27,716	*	-	-	-	-	-	27,704
<b>25-29</b>	Count	1,675	296	2	-	-	-	-	1,973
	Avg. Salary	36,034	\$43,167	*	-	-	-	-	37,112
<b>30-34</b>	Count	1,379	832	148	1	-	-	-	2,360
	Avg. Salary	34,675	48,655	\$50,373	*	-	-	-	40,589
<b>35-39</b>	Count	1,198	730	505	77	1	-	-	2,511
	Avg. Salary	32,258	45,212	53,889	\$56,002	*	-	-	41,112
<b>40-44</b>	Count	1,078	765	502	324	71	2	-	2,742
	Avg. Salary	31,881	43,423	52,126	59,818	\$61,187	*	-	42,879
<b>45-49</b>	Count	838	679	540	305	280	66	7	2,715
	Avg. Salary	31,619	40,268	46,232	53,209	64,018	\$54,059	\$57,489	43,067
<b>50-54</b>	Count	782	732	641	496	388	305	178	3,522
	Avg. Salary	31,970	37,685	41,851	47,790	56,292	62,528	61,231	43,989
<b>55-59</b>	Count	624	623	572	567	469	349	420	3,624
	Avg. Salary	30,665	38,584	42,901	44,967	50,597	58,923	64,870	45,460
<b>60-64</b>	Count	299	369	361	341	323	242	319	2,254
	Avg. Salary	29,994	39,084	38,917	43,318	49,684	50,654	62,191	44,523
<b>65-69</b>	Count	97	120	94	71	78	62	78	600
	Avg. Salary	24,350	34,040	40,268	36,654	47,669	47,951	55,348	39,738
<b>70 &amp; Over</b>	Count	34	31	24	6	14	11	16	136
	Avg. Salary	12,853	22,828	32,127	26,286	31,074	42,785	42,172	26,866
<b>Totals</b>	Count	<b>8,795</b>	<b>5,178</b>	<b>3,389</b>	<b>2,188</b>	<b>1,624</b>	<b>1,037</b>	<b>1,018</b>	<b>23,229</b>
	Avg. Salary	<b>\$32,396</b>	<b>\$42,039</b>	<b>\$45,990</b>	<b>\$48,761</b>	<b>\$54,247</b>	<b>\$56,897</b>	<b>\$62,257</b>	<b>\$42,001</b>

Average salary represents annualized salary earned in 2013 and is not shown for cells with counts less than or equal to three participants

**Distribution of Total Active Members by Age and by Years of Service**

Average Age = 46.5      Average Service = 10.2

Age Last Birthday		Whole Years of Service at Valuation Date							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 20</b>	Count	56	-	-	-	-	-	-	56
	Avg. Salary	\$13,575	-	-	-	-	-	-	\$13,575
<b>20-24</b>	Count	1,083	8	-	-	-	-	-	1,091
	Avg. Salary	28,374	\$34,116	-	-	-	-	-	28,416
<b>25-29</b>	Count	2,497	435	6	-	-	-	-	2,938
	Avg. Salary	37,331	43,791	\$50,434	-	-	-	-	38,315
<b>30-34</b>	Count	2,145	1,310	229	1	-	-	-	3,685
	Avg. Salary	38,218	50,923	51,876	*	-	-	-	43,582
<b>35-39</b>	Count	1,775	1,225	798	129	1	-	-	3,928
	Avg. Salary	37,242	49,701	56,631	\$58,731	*	-	-	45,777
<b>40-44</b>	Count	1,576	1,142	786	576	126	2	-	4,208
	Avg. Salary	36,155	46,936	55,529	63,343	\$63,020	*	-	47,231
<b>45-49</b>	Count	1,275	1,071	790	525	537	136	12	4,346
	Avg. Salary	36,501	45,858	49,815	59,307	67,316	\$58,325	\$55,974	48,526
<b>50-54</b>	Count	1,225	1,124	896	707	627	532	305	5,416
	Avg. Salary	36,146	42,840	45,687	52,154	59,615	66,081	64,677	48,467
<b>55-59</b>	Count	1,082	1,012	838	768	689	573	692	5,654
	Avg. Salary	36,219	43,234	46,412	48,977	54,721	62,712	68,232	49,576
<b>60-64</b>	Count	592	644	555	472	468	371	554	3,656
	Avg. Salary	34,230	43,595	44,485	47,746	53,285	57,461	66,564	48,878
<b>65-69</b>	Count	200	244	159	104	119	97	146	1,069
	Avg. Salary	27,833	39,063	43,465	42,432	53,259	56,746	61,272	44,162
<b>70 &amp; Over</b>	Count	88	76	54	22	18	20	29	307
	Avg. Salary	22,936	29,285	35,252	38,628	33,621	50,900	56,232	33,392
<b>Totals</b>	Count	<b>13,594</b>	<b>8,291</b>	<b>5,111</b>	<b>3,304</b>	<b>2,585</b>	<b>1,731</b>	<b>1,738</b>	<b>36,354</b>
	Avg. Salary	<b>\$35,870</b>	<b>\$45,998</b>	<b>\$49,639</b>	<b>\$53,729</b>	<b>\$58,455</b>	<b>\$61,790</b>	<b>\$66,207</b>	<b>\$46,029</b>

*Average salary represents annualized salary earned in 2013 and is not shown for cells with counts less than or equal to three participants*

**Distribution of Male Deferred Members by Age and by Years of Service**

Average Age = 51.9      Average Service = 9.4

Age Last Birthday	Whole Years of Service at Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 20</b>	-	-	-	-	-	-	-	-
<b>20-24</b>	2	-	-	-	-	-	-	2
<b>25-29</b>	12	15	-	-	-	-	-	27
<b>30-34</b>	32	52	2	-	-	-	-	86
<b>35-39</b>	28	79	10	-	-	-	-	117
<b>40-44</b>	51	98	26	5	-	-	-	180
<b>45-49</b>	34	136	43	24	7	1	-	245
<b>50-54</b>	54	151	78	44	27	8	1	363
<b>55-59</b>	51	144	104	61	24	8	2	394
<b>60-64</b>	39	97	39	19	13	1	1	209
<b>65-69</b>	16	27	16	7	3	3	1	73
<b>70 &amp; Over</b>	11	16	6	1	-	-	2	36
<b>Totals</b>	<b>330</b>	<b>815</b>	<b>324</b>	<b>161</b>	<b>74</b>	<b>21</b>	<b>7</b>	<b>1,732</b>

**Distribution of Female Deferred Members by Age and by Years of Service**

Average Age = 52.2      Average Service = 8.9

Age Last Birthday	Whole Years of Service at Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 20</b>	-	-	-	-	-	-	-	-
<b>20-24</b>	2	-	-	-	-	-	-	2
<b>25-29</b>	39	25	-	-	-	-	-	64
<b>30-34</b>	77	124	6	-	-	-	-	207
<b>35-39</b>	87	156	25	1	-	-	-	269
<b>40-44</b>	81	232	56	17	2	-	-	388
<b>45-49</b>	81	252	100	26	9	2	-	470
<b>50-54</b>	124	348	183	64	27	10	5	761
<b>55-59</b>	130	420	225	102	56	20	2	955
<b>60-64</b>	90	259	87	45	22	10	3	516
<b>65-69</b>	41	83	30	10	5	1	1	171
<b>70 &amp; Over</b>	27	48	12	-	-	1	1	89
<b>Totals</b>	<b>779</b>	<b>1,947</b>	<b>724</b>	<b>265</b>	<b>121</b>	<b>44</b>	<b>12</b>	<b>3,892</b>

**Distribution of Total Deferred Members by Age and by Years of Service**

Average Age = 52.1      Average Service = 9.1

Age Last Birthday	Whole Years of Service at Valuation Date							Totals
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 20</b>	-	-	-	-	-	-	-	-
<b>20-24</b>	4	-	-	-	-	-	-	4
<b>25-29</b>	51	40	-	-	-	-	-	91
<b>30-34</b>	109	176	8	-	-	-	-	293
<b>35-39</b>	115	235	35	1	-	-	-	386
<b>40-44</b>	132	330	82	22	2	-	-	568
<b>45-49</b>	115	388	143	50	16	3	-	715
<b>50-54</b>	178	499	261	108	54	18	6	1,124
<b>55-59</b>	181	564	329	163	80	28	4	1,349
<b>60-64</b>	129	356	126	64	35	11	4	725
<b>65-69</b>	57	110	46	17	8	4	2	244
<b>70 &amp; Over</b>	38	64	18	1	-	1	3	125
<b>Totals</b>	<b>1,109</b>	<b>2,762</b>	<b>1,048</b>	<b>426</b>	<b>195</b>	<b>65</b>	<b>19</b>	<b>5,624</b>

**Schedule of Pension Recipients Added to and Removed from Rolls**

<b>Fiscal Year Ending December 31</b>	<b>Added to Rolls*</b>		<b>Removed from Rolls</b>		<b>Total</b>		<b>Percent Increase in Annual Pension Benefits</b>	<b>Average Annual Pension Benefit</b>
	<b>Count</b>	<b>Annual Pension Benefits</b>	<b>Count</b>	<b>Annual Pension Benefits</b>	<b>Count</b>	<b>Annual Pension Benefits</b>		
2008	1,290	\$26,985,322	552	\$3,650,746	18,333	\$268,901,376	9.50%	\$14,668
2009	1,160	24,062,484	577	6,292,131	18,916	286,671,729	6.61%	15,155
2010	1,388	31,055,004	562	6,314,155	19,742	311,412,579	8.63%	15,774
2011	1,538	34,517,321	592	7,019,999	20,688	338,909,901	8.83%	16,382
2012	1,497	35,646,627	585	6,920,227	21,600	367,636,301	8.48%	17,020
2013	1,745	39,633,549	614	8,227,809	22,731	399,042,042	8.54%	17,555

\* Includes cost-of-living increases

**Retired and Disabled Members by Option Code**

Option Code*	Count			Monthly Benefit		
	Male	Female	Total	Male	Female	Total
<b>1</b>	1,820	5,460	7,280	\$2,876,215	\$6,601,703	\$9,477,918
<b>2</b>	3,892	2,490	6,382	7,238,641	3,417,142	10,655,783
<b>2P</b>	1,165	1,449	2,614	1,998,195	2,295,874	4,294,068
<b>3</b>	495	460	955	1,085,647	702,170	1,787,817
<b>3P</b>	270	461	731	642,975	880,181	1,523,156
<b>4</b>	312	542	854	419,096	618,992	1,038,088
<b>5</b>	437	1,330	1,767	612,945	1,498,035	2,110,980
<b>Total</b>	<b>8,392</b>	<b>12,192</b>	<b>20,584</b>	<b>\$14,873,714</b>	<b>\$16,014,096</b>	<b>\$30,887,811</b>
<b>Beneficiaries</b>	<b>426</b>	<b>1,721</b>	<b>2,147</b>	<b>\$422,088</b>	<b>\$1,943,535</b>	<b>\$2,365,623</b>
<b>Grand Total</b>	<b>8,818</b>	<b>13,913</b>	<b>22,731</b>	<b>\$15,295,802</b>	<b>\$17,957,631</b>	<b>\$33,253,434</b>

*See optional forms of payment in Appendix B*

**Pensioners by Amount and Option Code**

<b>Males</b>	<b>Option Code</b>							
<b>Benefit Amount</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4</b>	<b>5</b>	<b>Total</b>
<b>Under \$200</b>	110	151	64	4	3	32	109	473
<b>\$200-\$399</b>	202	333	124	17	16	35	138	865
<b>\$400-\$599</b>	202	324	122	28	15	38	119	848
<b>\$600-\$799</b>	164	279	90	28	15	32	86	694
<b>\$800-\$999</b>	142	237	79	22	11	20	70	581
<b>\$1,000-\$1,499</b>	243	502	141	83	30	51	107	1,157
<b>\$1,500-\$1,999</b>	193	477	102	57	27	34	56	946
<b>\$2,000-\$2,499</b>	159	439	136	70	35	19	61	919
<b>\$2,500 &amp; over</b>	407	1,150	307	186	118	51	116	2,335
<b>Total</b>	<b>1,822</b>	<b>3,892</b>	<b>1,165</b>	<b>495</b>	<b>270</b>	<b>312</b>	<b>862</b>	<b>8,818</b>
<b>Females</b>								
<b>Benefit Amount</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4</b>	<b>5</b>	<b>Total</b>
<b>Under \$200</b>	495	215	84	15	10	55	305	1,179
<b>\$200-\$399</b>	818	350	166	48	24	96	463	1,965
<b>\$400-\$599</b>	715	270	129	42	35	81	425	1,697
<b>\$600-\$799</b>	599	203	125	47	37	64	322	1,397
<b>\$800-\$999</b>	428	188	106	29	31	42	267	1,091
<b>\$1,000-\$1,499</b>	809	384	203	83	71	67	457	2,074
<b>\$1,500-\$1,999</b>	516	239	153	66	59	33	297	1,363
<b>\$2,000-\$2,499</b>	379	190	145	50	51	34	188	1,037
<b>\$2,500 &amp; over</b>	702	451	338	80	143	70	326	2,110
<b>Total</b>	<b>5,461</b>	<b>2,490</b>	<b>1,449</b>	<b>460</b>	<b>461</b>	<b>542</b>	<b>3,050</b>	<b>13,913</b>
<b>Males &amp; Females</b>								
<b>Benefit Amount</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4</b>	<b>5</b>	<b>Total</b>
<b>Under \$200</b>	605	366	148	19	13	87	414	1,652
<b>\$200-\$399</b>	1,020	683	290	65	40	131	601	2,830
<b>\$400-\$599</b>	917	594	251	70	50	119	544	2,545
<b>\$600-\$799</b>	763	482	215	75	52	96	408	2,091
<b>\$800-\$999</b>	570	425	185	51	42	62	337	1,672
<b>\$1,000-\$1,499</b>	1,052	886	344	166	101	118	564	3,231
<b>\$1,500-\$1,999</b>	709	716	255	123	86	67	353	2,309
<b>\$2,000-\$2,499</b>	538	629	281	120	86	53	249	1,956
<b>\$2,500 &amp; over</b>	1,109	1,601	645	266	261	121	442	4,445
<b>Total</b>	<b>7,283</b>	<b>6,382</b>	<b>2,614</b>	<b>955</b>	<b>731</b>	<b>854</b>	<b>3,912</b>	<b>22,731</b>

**Pensioners by Age and Option Code**

Average Age Male = 71.4

Average Age Female = 71.8

Average Age Total = 71.7

<b>Males</b>	<b>Option Code</b>							
<b>Age Last Birthday</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4</b>	<b>5</b>	<b>Total</b>
<b>Under 50</b>	-	3	-	-	-	-	18	21
<b>50-54</b>	13	32	12	2	-	4	13	76
<b>55-59</b>	102	215	59	13	13	14	28	444
<b>60-64</b>	281	614	306	61	59	50	139	1,510
<b>65-69</b>	416	990	376	90	88	70	164	2,194
<b>70-74</b>	382	784	231	90	57	70	151	1,765
<b>75-79</b>	269	593	117	97	34	42	134	1,286
<b>80-84</b>	194	377	52	71	16	33	103	846
<b>85 &amp; over</b>	165	284	12	71	3	29	112	676
<b>Total</b>	<b>1,822</b>	<b>3,892</b>	<b>1,165</b>	<b>495</b>	<b>270</b>	<b>312</b>	<b>862</b>	<b>8,818</b>
<b>Females</b>								
<b>Age Last Birthday</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4</b>	<b>5</b>	<b>Total</b>
<b>Under 50</b>	2	3	-	-	-	-	28	33
<b>50-54</b>	37	23	20	4	1	5	26	116
<b>55-59</b>	231	172	135	26	38	20	99	721
<b>60-64</b>	863	606	448	94	135	96	348	2,590
<b>65-69</b>	1,176	673	499	119	135	152	521	3,275
<b>70-74</b>	1,042	450	236	80	93	105	528	2,534
<b>75-79</b>	823	261	82	50	48	72	519	1,855
<b>80-84</b>	617	166	25	53	9	57	430	1,357
<b>85 &amp; over</b>	670	136	4	34	2	35	551	1,432
<b>Total</b>	<b>5,461</b>	<b>2,490</b>	<b>1,449</b>	<b>460</b>	<b>461</b>	<b>542</b>	<b>3,050</b>	<b>13,913</b>
<b>Males &amp; Females</b>								
<b>Age Last Birthday</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4</b>	<b>5</b>	<b>Total</b>
<b>Under 50</b>	2	6	-	-	-	-	46	54
<b>50-54</b>	50	55	32	6	1	9	39	192
<b>55-59</b>	333	387	194	39	51	34	127	1,165
<b>60-64</b>	1,144	1,220	754	155	194	146	487	4,100
<b>65-69</b>	1,592	1,663	875	209	223	222	685	5,469
<b>70-74</b>	1,424	1,234	467	170	150	175	679	4,299
<b>75-79</b>	1,092	854	199	147	82	114	653	3,141
<b>80-84</b>	811	543	77	124	25	90	533	2,203
<b>85 &amp; over</b>	835	420	16	105	5	64	663	2,108
<b>Total</b>	<b>7,283</b>	<b>6,382</b>	<b>2,614</b>	<b>955</b>	<b>731</b>	<b>854</b>	<b>3,912</b>	<b>22,731</b>

**Pensions Awarded in 2013 by Option Code**

Average Age = 63.7

<b>Males &amp; Females</b>	<b>Option Code</b>							
<b>Benefit Amount</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4</b>	<b>5</b>	<b>Total</b>
<b>Under \$200</b>	28	19	10	4	1	1	29	92
<b>\$200-\$399</b>	49	44	26	2	4	3	38	166
<b>\$400-\$599</b>	54	37	22	4	5	6	40	168
<b>\$600-\$799</b>	45	28	15	3	8	6	29	134
<b>\$800-\$999</b>	26	23	19	5	2	1	26	102
<b>\$1,000-\$1,499</b>	61	63	34	12	12	4	57	243
<b>\$1,500-\$1,999</b>	39	57	24	9	10	4	32	175
<b>\$2,000-\$2,499</b>	44	40	24	6	3	1	16	134
<b>\$2,500 &amp; over</b>	113	207	94	31	28	8	50	531
<b>Total</b>	<b>459</b>	<b>518</b>	<b>268</b>	<b>76</b>	<b>73</b>	<b>34</b>	<b>317</b>	<b>1,745</b>
<b>Males &amp; Females</b>								
<b>Age Last Birthday</b>	<b>1</b>	<b>2</b>	<b>2P</b>	<b>3</b>	<b>3P</b>	<b>4</b>	<b>5</b>	<b>Total</b>
<b>Under 50</b>	1	1	0	0	0	0	12	14
<b>50-54</b>	20	21	18	3	0	2	7	71
<b>55-59</b>	70	103	39	10	16	4	23	265
<b>60-64</b>	203	242	138	36	42	17	93	771
<b>65-69</b>	130	125	62	19	14	9	67	426
<b>70-74</b>	25	25	8	4	1	2	38	103
<b>75-79</b>	10	1	3	3	0	0	31	48
<b>80-84</b>	0	0	0	1	0	0	27	28
<b>85 &amp; over</b>	0	0	0	0	0	0	19	19
<b>Total</b>	<b>459</b>	<b>518</b>	<b>268</b>	<b>76</b>	<b>73</b>	<b>34</b>	<b>317</b>	<b>1,745</b>

**Retirees and Disabled Members by Service at Retirement and Years Since Retirement**  
(Average Monthly Benefit)

Average Service at Retirement = 19.4      Average Years Since Retirement = 11.4

Service at Retirement		Years Elapsed Since Retirement							Totals
		0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	
<b>Less than 5</b>	Count	234	220	151	112	121	94	62	994
	Avg. Benefit	\$360	\$245	\$636	\$969	\$664	\$140	\$135	\$271
<b>5-9</b>	Count	939	693	513	403	357	286	194	3,385
	Avg. Benefit	\$471	\$399	\$367	\$330	\$311	\$316	\$260	\$382
<b>10-14</b>	Count	831	595	522	482	416	231	159	3,236
	Avg. Benefit	\$856	\$710	\$634	\$617	\$581	\$554	\$436	\$680
<b>15-19</b>	Count	787	651	560	558	307	219	102	3,184
	Avg. Benefit	\$1,351	\$1,098	\$974	\$937	\$924	\$852	\$660	\$1,063
<b>20-24</b>	Count	903	665	502	429	253	160	62	2,974
	Avg. Benefit	\$1,977	\$1,570	\$1,384	\$1,348	\$1,274	\$1,219	\$849	\$1,571
<b>25-29</b>	Count	1,078	839	559	391	166	144	31	3,208
	Avg. Benefit	\$2,735	\$2,319	\$2,084	\$1,914	\$1,883	\$1,586	\$1,103	\$2,301
<b>30-34</b>	Count	1,014	660	419	323	180	114	11	2,721
	Avg. Benefit	\$3,546	\$3,045	\$2,656	\$2,700	\$2,697	\$2,194	\$1,391	\$3,066
<b>35 &amp; Over</b>	Count	419	200	86	88	67	20	2	882
	Avg. Benefit	\$4,365	\$3,795	\$3,203	\$3,220	\$3,174	\$2,572	\$1,264	\$3,870
<b>Totals</b>	Count	<b>6,205</b>	<b>4,523</b>	<b>3,312</b>	<b>2,786</b>	<b>1,867</b>	<b>1,268</b>	<b>623</b>	<b>20,584</b>
	Avg. Benefit	<b>\$2,075</b>	<b>\$1,596</b>	<b>\$1,310</b>	<b>\$1,240</b>	<b>\$1,065</b>	<b>\$902</b>	<b>\$482</b>	<b>\$1,571</b>

**Retirees and Disabled Members by Year of Retirement**

January 1, 2014 Total = 20,584

<b>Year of Retirement</b>	<b>Count</b>	<b>Year of Retirement</b>	<b>Count</b>
<b>Under 1960</b>	-	<b>1987</b>	373
<b>1960</b>	-	<b>1988</b>	329
<b>1961</b>	-	<b>1989</b>	294
<b>1962</b>	-	<b>1990</b>	334
<b>1963</b>	-	<b>1991</b>	344
<b>1964</b>	-	<b>1992</b>	458
<b>1965</b>	-	<b>1993</b>	423
<b>1966</b>	-	<b>1994</b>	459
<b>1967</b>	-	<b>1995</b>	776
<b>1968</b>	-	<b>1996</b>	497
<b>1969</b>	-	<b>1997</b>	511
<b>1970</b>	-	<b>1998</b>	525
<b>1971</b>	11	<b>1999</b>	558
<b>1972</b>	8	<b>2000</b>	614
<b>1973</b>	10	<b>2001</b>	685
<b>1974</b>	19	<b>2002</b>	678
<b>1975</b>	18	<b>2003</b>	762
<b>1976</b>	29	<b>2004</b>	871
<b>1977</b>	44	<b>2005</b>	813
<b>1978</b>	53	<b>2006</b>	830
<b>1979</b>	74	<b>2007</b>	940
<b>1980</b>	66	<b>2008</b>	1,092
<b>1981</b>	92	<b>2009</b>	962
<b>1982</b>	85	<b>2010</b>	1,160
<b>1983</b>	106	<b>2011</b>	1,362
<b>1984</b>	143	<b>2012</b>	1,355
<b>1985</b>	191	<b>2013 &amp; over</b>	1,408
<b>1986</b>	222		

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## **APPENDIX A**

### **SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS**

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## Summary of Actuarial Assumptions and Methods

The following methods and assumptions were used in preparing the January 1, 2014 actuarial valuation report.

### 1. Valuation Date

The valuation date for any given year is January 1<sup>st</sup>, the first day of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

### 2. Actuarial Cost Method

The actuarial valuation uses the Entry Age Normal (EAN) actuarial cost method, amortized as a level percentage of payroll. Under this method, the employer contribution rate is the sum of (i) the employer normal cost rate, and (ii) the rate that will amortize the unfunded actuarial accrued liability (UAAL).

- a. The valuation is prepared on the projected benefit basis, under which the present value, at the investment return rate assumed to be earned in the future (currently 7.75%), of each participant's expected benefit payable at retirement or death is determined, based on his/her age, service, sex and compensation. The calculations take into account the probability of a participant's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his/her terminating with a service, disability, or survivor's benefit. Future salary increases are also anticipated. The present value of the expected benefits payable for the active participants is added to the present value of the expected future payments to retired participants and beneficiaries to obtain the present value of all expected benefits payable from the Fund on account of the present group of participants and beneficiaries.
- b. The employer contributions required to support the benefits of the Fund are determined using a level funding approach, and consist of a normal cost contribution and an accrued liability contribution.
- c. The normal cost contribution is determined using the "entry age normal" actuarial cost method. Under this method, a calculation is made to determine the average uniform and constant percentage rate of employer contribution which, if applied to the compensation of each new participant during the entire period of his/her anticipated covered service, would be required to meet the cost of all benefits payable on his/her behalf based on the benefits provisions applicable for the individual member.

- d. The unfunded actuarial accrued liability contributions are determined by subtracting the actuarial value of assets from the actuarial accrued liability and amortizing the result over 30 years from the valuation date.

3. Actuarial Value of Assets

The actuarial value of assets is based on the market value of assets with a five-year phase-in of actual investment return in excess of (less than) expected investment income, with interest, dividends, and other income recognized immediately. Expected investment income is determined using the assumed investment return rate and the market value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses. An adjustment is made if the actuarial value is not within 20% of the Market Value. For any year following a year in which the 20% of market value adjustment was applied, the actuarial value is determined as if the adjustment was not applied in the previous year.

4. Economic Assumptions

a. Investment return

7.75% per year, compounded annually, composed of an assumed 3.25% inflation rate and a 4.50% net real rate of return. This rate represents the assumed return, net of investment expenses.

b. Salary increase rate

Age	Rate
20	6.00%
25	6.00%
30	5.75%
35	5.75%
40	5.50%
45	5.50%
50	5.50%
55	5.25%
60	4.25%

- c. Payroll growth rate: In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 4.25% per year. This increase rate is solely due to the effect of inflation on salaries, with no allowance for future membership growth.

5. Demographic Assumptions

a. Mortality

Healthy Pre-Retirement Mortality:

RP-2000 Combined Mortality Table, fully generational, projected with Scale BB

Males: Set back 5 years with a multiplier of 104%

Females: Set back 4 years with a multiplier of 90%

Healthy Post-Retirement Mortality:

RP-2000 Combined Mortality Table, fully generational, projected with Scale BB

Males: Set back 1 year with a multiplier of 104%

Females: Set back 0 years with a multiplier of 90%

Disabled Mortality:

RP-2000 Disabled Mortality Table, fully generational, projected with Scale BB

Males: Set forward 5 years with a multiplier of 120%

Females: Set forward 5 years with a multiplier of 120%

Age	Pre-Retirement		Post-Retirement		Disabled	
	Projected to 2014 using Scale BB					
	Male	Female	Male	Female	Male	Female
20	0.03%	0.02%	0.03%	0.02%	2.60%	0.86%
25	0.03%	0.02%	0.04%	0.02%	2.60%	0.86%
30	0.04%	0.02%	0.04%	0.02%	2.60%	0.86%
35	0.04%	0.03%	0.07%	0.04%	2.60%	0.86%
40	0.08%	0.04%	0.10%	0.06%	2.60%	0.86%
45	0.11%	0.07%	0.14%	0.10%	3.33%	1.33%
50	0.15%	0.11%	0.20%	0.14%	4.08%	1.85%
55	0.21%	0.16%	0.32%	0.23%	4.57%	2.28%
60	0.36%	0.26%	0.57%	0.40%	5.08%	2.84%
65	0.64%	0.45%	1.00%	0.74%	6.08%	3.81%
70	1.12%	0.83%	1.67%	1.27%	7.97%	5.29%
75			2.85%	2.14%	10.62%	7.33%
80			4.88%	3.49%	13.75%	10.15%
85			8.40%	5.89%	18.85%	14.39%
90			14.62%	10.15%	29.51%	21.46%
95			23.63%	16.09%	39.64%	27.32%
100			32.93%	20.49%	47.75%	35.17%

b. Disability and Withdrawal

Age	Disability		Withdrawal	
	Male	Female	Ultimate	
			Male	Female
20	0.01%	0.01%	10.00%	11.00%
25	0.01%	0.01%	10.00%	11.00%
30	0.01%	0.01%	4.50%	7.50%
35	0.01%	0.01%	4.00%	5.00%
40	0.01%	0.01%	4.00%	5.00%
45	0.03%	0.03%	3.50%	5.00%
50	0.15%	0.06%	3.00%	4.00%
55	0.30%	0.15%	3.00%	4.00%
60	0.30%	0.30%	3.00%	4.00%

Service	Withdrawal	
	Male	Female
1	22%	26%
2	18%	21%
3	13%	15%
4	11%	15%
5	11%	14%

c. Retirement Rates

Age	Retirement	
	Unreduced	Reduced
<50	10.0%	1.0%
50	10.0%	4.5%
51	10.0%	4.5%
52	10.0%	4.5%
53	10.0%	5.0%
54	10.0%	5.0%
55	17.0%	5.0%
56	17.0%	5.0%
57	15.0%	5.0%
58	15.0%	5.5%
59	15.0%	6.0%
60	13.0%	13.0%
61	13.0%	13.0%
62	17.5%	17.5%
63	17.5%	17.5%
64	17.0%	17.0%
65	25.0%	25.0%
66	32.0%	32.0%
67	20.0%	20.0%
68	20.0%	20.0%
69	20.0%	20.0%
70+	100.0%	100.0%

6. Other Assumptions

- a. Percent married: 85.00% of employees are assumed to be married. (No beneficiaries other than the spouse assumed.)
- b. Age difference: Male members are assumed to be three years older than their spouses, and female members are assumed to be three years younger than their spouses.
- c. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an annuity.
- d. Percent electing deferred termination benefit: Vested terminating members are assumed to elect a refund or a deferred benefit. It is assumed that 25% of active members who terminate with a deferred vested benefit will elect to have their contributions refunded.
- e. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at the first age at which unreduced benefits are available, which for this plan is age 60 (65 for Tier 2).
- f. No benefit data is available for members entitled to deferred benefits. The present value of benefits expected to be paid to vested inactive non-retired members is approximated using the data provided.
- g. There will be no recoveries once disabled. We assume all members are totally disabled.
- h. No surviving spouse will remarry.
- i. Administrative expenses: Assumed to be the average of the prior two years, with each year projected at 6.5% to the valuation date.
- j. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported pay represents amount paid to members during the year ended on the valuation date.
- k. Decrement timing: Decrements of all types are assumed to occur mid-year.
- l. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.

- m. Decrement relativity: Decrement rates are converted to probabilities in order to account for multiple decrements.
- n. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in the report, and the actual payroll payable at the time contributions are made.
- o. Benefit Service: All members are assumed to accrue one year of service each year. Exact fractional service is used to determine the amount of benefit payable.

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## **APPENDIX B**

### SUMMARY OF PLAN PROVISIONS

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## Summary of Plan Provisions

<b>Covered Members</b>	Any full-time or regular part-time employee of an employer as defined under W.S. 9-3-402(a)(vii)
<b>Tier</b>	Members who join the State of Wyoming Retirement System by August 31, 2012 are in Tier 1, while members who join on or after September 1, 2012 are in Tier 2.
<b>Final Average Salary</b>	For Tier 1 member: employee's average annual salary for the highest paid three continuous years of service. For Tier 2 member: employee's average annual salary for the highest paid five continuous years of service.
<b>Service Retirement</b>	
Eligibility	Tier 1 members may retire upon normal retirement on the date he/she attains age 60 with four or more years of service while Tier 2 members may retire upon normal retirement on the date he/she attains age 65 with four or more years of service. All employees may also retire upon normal retirement on the date that the sum of the member's age and service is at least 85. Tier 1 members are eligible for a reduced benefit at age 50 with four or more years of service and Tier 2 members are eligible for a reduced benefit at age 55 with four or more years of service. All members are eligible for a reduced benefit at any age with 25 or more years of service.
Monthly Benefit	For Tier 1 member: 2.125% of employee's Final Average Salary for each year of credited service for the first 15 years of service credit plus 2.25% of Final Average Salary for any years of service credit exceeding 15 years. For Tier 2 member: 2.000% of employee's Final (5-year) Average Salary for each year of credited service.  This amount is reduced by 5.0% per year that the employee is under age 60 for Tier 1 and under age 65 for Tier 2. However, members retiring with a combined age and service of at least 85 receive an unreduced benefit. Employees hired prior to July 1, 1981 may be entitled to benefits earned under a different formula.
Vesting	Any employee who has left employment with four or more years of service, and who has not withdrawn accumulated contributions, is eligible to receive the above benefit or can elect to receive a lump-sum refund of employee contributions with interest. An employee who terminates with less than four years of service is only eligible for the lump-sum benefit.
<b>Disability Benefit</b>	
Eligibility	Ten or more years of service.
Benefit	Service retirement benefit earned as of the date of disability, payable immediately.

### Pre-retirement Death Benefit

Eligibility	No age or service requirements.
Benefit	A lump sum equal to two times the employee contributions with interest. If the employee is vested, the beneficiary can elect, in lieu of this lump sum, to receive a monthly annuity equal to the actuarial equivalent of the retirement benefit that would be due the employee.

### Contributions

Employee	7.50% of salary before July 1, 2014 and 8.25% after
Employer	7.12% of salary before July 1, 2014, then 7.62% before July 1, 2015, and 8.37% after
Interest	5.50% annually.

<b>Cost-of-Living Improvements</b>	W.S. 9-3-454 prohibits benefit changes, including cost-of-living increases, unless the funded ratio stays above 100% plus a margin for adverse experience throughout the life of the benefit change.
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### Optional Forms of Payment

Option 1 (normal form)	Monthly benefit for life with a lump-sum death benefit equal to the excess (if any) of the employee contributions with interest over the total benefits received.
Option 2	Monthly benefit for life. Upon death, 100% of the benefit continues to be paid to the beneficiary.
Option 2P	Monthly benefit for life. Upon death, 100% of the benefit continues to be paid to the beneficiary. Benefit reverts to Option 1 amount but without the cash refund feature upon beneficiary death.
Option 3	Monthly benefit for life. Upon death, 50% of the benefit continues to be paid to the beneficiary.
Option 3P	Monthly benefit for life. Upon death, 50% of the benefit continues to be paid to the beneficiary. Benefit reverts to Option 1 amount but without the cash refund feature upon beneficiary death.
Option 4	Monthly benefit for life with a guarantee of 120 monthly payments
Option 5	The largest possible monthly benefit payable for life with no lump-sum death benefit.